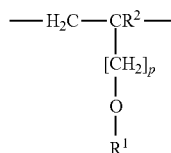
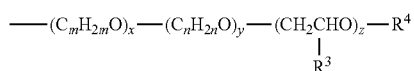


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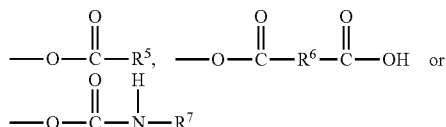
a polycarboxylate dispersant consisting essentially of a first and a second repeating unit, wherein said first repeating unit is an olefinic unsaturated mono-carboxylic acid repeating unit or an ester or salt thereof, or an olefinic unsaturated sulfonic acid repeating unit or a salt thereof, and said second repeating unit is of the general formula (I)



where R¹ is represented by



and wherein R² is hydrogen or an aliphatic C₁ to C₅ hydrocarbon group, R³ is a non-substituted or substituted aryl group and preferably phenyl, and R⁴ is hydrogen or an aliphatic C₁ to C₂₀ hydrocarbon group, a cycloaliphatic C₅ to C₈ hydrocarbon group, a substituted C₆ to C₁₄ aryl group or a group conforming to the formula



wherein R⁵ and R⁷, independently of each other, represent an alkyl, aryl, aralkyl or alkaryl group and R⁶ is a divalent alkyl, aryl, aralkyl or alkaryl group, p is 0, 1, 2, 3, inclusive, m and n are, independently, an integer from 2, 3, 4, 5, inclusive; x and y are, independently, integers from 1 to 350, inclusive and z is from 0 to 200, inclusive.

2. The gypsum building panel of claim 1 further comprising a surfactant.

3. The gypsum building panel of claim 1 wherein said core material further comprises at least one of the group consisting of a set accelerator, foaming agent, strengthening agent, starch, and a trimetaphosphate compound.

4. The gypsum building panel of claim 1 wherein said surfactant is selected from the group consisting of an ethylene oxide/propylene oxide block copolymer, an alcohol ethyloxide R₉-(EO)-H with R₉ being selected from the group consisting of an aliphatic hydrocarbon group having from 1 to 20 carbon atoms, acetylenic diols, monoalkylpolyalkylenes, ethoxylated nonylphenols, alkylethersulfonates and combinations thereof, a styrene/maleic acid copolymer, a fatty alcohol alkoxylate and combinations thereof.

5. The gypsum building panel of claim 1 wherein at least a portion of said defoamer is attached onto said polycarboxylate and comprises a hydrophobic structural element.

6. The method of preparing a gypsum product comprising the steps of:

forming an aqueous soap mixture having one or more soaps and foam water in an initial concentration by weight of the one or more soaps in the foam water;

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pregenerating foam from the aqueous soap mixture;
preparing a gypsum slurry by mixing together gauging water, a hydraulic component comprising at least 50 percent calcined gypsum by weight based on the dry weight of the hydraulic component, a defoamer, and a polycarboxylate dispersant;

combining the slurry and the pregenerated foam to make a foamed gypsum core having a size distribution of voids in the core; and

changing the size distribution of the voids in the core produced in the combining step by carrying out the forming step with a second concentration different from the initial concentration and then carrying out said pre-generating, preparing, and combining steps.

7. The method of claim 6 wherein the concentration of the one or more soaps in the aqueous mixture in said forming step is from about 0.1 to about 1.5 wt % of the aqueous soap mixture.

8. The method of claim 7 wherein the concentration of the one or more soaps in the aqueous soap mixture in said forming step is from about 0.15 to about 0.75 wt % of the aqueous soap mixture.

9. The method of claim 6 wherein said changing step further comprises reducing the concentration of soap in the aqueous soap mixture if the cumulative volume of the voids smaller than 0.25 mm in diameter is less than or equal to the cumulative volume of voids larger than 0.25 mm.

10. The method of claim 6 wherein said preparing step further comprises adding the dispersant and the defoamer together to the slurry in a liquid composition.

11. A method of preparing a formed gypsum panel comprising:

adding a polycarboxylate dispersant and a defoamer, independently, to gauging water, foam water or both;

providing a gypsum slurry comprising calcined gypsum, and the gauging water;

preparing a foam from the foam water and one or more foaming agents;

combining the foam and the gypsum slurry to make a foamed gypsum slurry; forming the foamed gypsum slurry into a panel; and

allowing the panel to set.

12. The method of claim 11 wherein said defoamer is a silicone compound or moiety.

13. The method of claim 11 wherein said combining step further comprises introducing the foam into the gypsum slurry through a foam ring.

14. The method of claim 11 wherein said selecting step further comprises choosing the polycarboxylate dispersant to include a plurality of ether-linked polyoxyalkylene chains.

15. The method of claim 11 wherein the one or more foaming agents of said preparing step include a first foaming agent that produces an unstable foam and a second foaming agent that produces a stable foam.

16. The method of claim 11 wherein substantially all of the polycarboxylate of the adding step is added to the foam water.

17. The method of claim 12 wherein said selecting step further comprises choosing the polycarboxylate dispersant to include a plurality of ether-linked polyoxyalkylene chains.

18. The method of claim 17 wherein the one or more foaming agents of said preparing step include a first foaming agent that produces an unstable foam and a second foaming agent that produces a stable foam.